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18 DEC ER

Mr. Richard A. Cabell
Vice-President
The International Nickel Company, Inc.
67 Wall Street
New York 5, New York

Dear Mr. Cabell:

Mr. Dulles has asked me to thank you very much for sending him the information on the nickel industry.

I am taking the liberty of sending it to some of our specialists here for information and further study. Your courtesy in making it available to us is indeed appreciated.

Sincerely,

SIGNED

[redacted] STATINTL

Executive Officer

STATINTL O/DCI/[redacted] dd 18 Dec 58

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THE INTERNATIONAL NICKEL COMPANY, INC.
67 WALL STREET
NEW YORK 5, N. Y.

RICHARD A. CABELL
VICE-PRESIDENT

December 15, 1958.

I think you will be interested in the attached statement of Dr. John F. Thompson, Chairman of The International Nickel Company of Canada, Limited, outlining the dramatic changes which have taken place in the nickel supply situation and other highlights of the nickel industry during the past year.

NICKEL INFORMATION SERVICE
of
THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.

INCO TRADE MARK

L. A. FINK, Manager of Service
Telephone: WHitehall 4-1009

FOR RELEASE MONDAY, DECEMBER 15, 1958

ABUNDANT SUPPLIES, VIGOROUS COMPETITION FOR NEW MARKETS HIGHLIGHT NICKEL INDUSTRY IN 1958

Copper Cliff, Ont., Dec. 15.--The year 1958 was marked by dramatic changes in the nickel industry, highlighted by abundant supplies of nickel throughout the free world for both civilian and military purposes as well as by vigorous competition for new markets, Dr. John F. Thompson, Chairman of the Board of The International Nickel Company of Canada, Limited, said today.

In a review of developments in the nickel industry in 1958, Dr. Thompson emphasized the enormous growth that has taken place in nickel production capacity, as well as the huge expansion which will occur during the next few years.

"The free world attained a new high in annual nickel production capacity in 1958, estimated at about 525,000,000 pounds -- almost double the capacity existing prior to the Korean conflict," Dr. Thompson said, adding that this capacity will reach about 650,000,000 pounds in 1961.

By 1961, he pointed out, "production capacity will be about double the estimated total free world consumption in 1958. As a result, consumers who had been forced for a protracted period to curtail their uses of nickel for civilian purposes can now be assured of steady, abundant supplies of this extremely useful metal in the years ahead."

Dr. Thompson explained that a substantial part of this rapid expansion in capacity will be forthcoming from International Nickel's Manitoba project, but he

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emphasized that most other producers in the industry are similarly engaged in expansion programs and new competitors are entering the field. International Nickel's Manitoba project, which will have an annual capacity of 75,000,000 pounds, will increase the company's total capacity to 385,000,000 pounds annually in 1961, he said, pointing out that this project is being financed from company funds and without any government guarantee of a market.

"Total nickel consumption in the free world during 1958 is expected to be between 325,000,000 and 335,000,000 pounds, compared with about 415,000,000 pounds in the previous year," Dr. Thompson stated. "The principal cause of the decrease was the business recession in the United States and Canada..."

"Canadian production during 1958 declined sharply," he continued, "largely as the result of a strike which began in September at International Nickel's mines and plants in Ontario. Prior to this, due to reduced demand, the company had announced three curtailments in production which ultimately lowered its output to an annual rate of about 200,000,000 pounds, or about two-thirds of capacity. Cuban production was also reduced as a result of lower demand and internal disorders in that country."

In discussing the outlook for nickel, Dr. Thompson said, "Consumption of nickel in recent months has shown an improvement over the low levels touched earlier in the year, and it is expected that this situation will continue into 1959.

"The nickel industry is entering into a period of vigorous competition. During the past period of nickel shortage, producers of competitive materials have naturally taken advantage of the fact that large quantities of nickel were required for defense production and were also put into government stockpile. As a result substantial inroads were made into traditional civilian markets for nickel. Now that nickel supplies are plentiful, both for defense and civilian purposes, the nickel industry must recapture these markets and create new uses for nickel-containing products.

"We are confident that the research and sales programs of International Nickel and the other nickel producers will result in a steady upward trend in consumption, with substantial benefits to the nickel producers as well as to nickel consumers."

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THE INTERNATIONAL NICKEL COMPANY OF CANADA, LIMITED

GENERAL OFFICES, COPPER CLIFF, ONT.

12/15/58.

THE NICKEL INDUSTRY IN 1958

by

Dr. John F. Thompson,
Chairman of the Board of Directors,
The International Nickel Company of Canada, Limited.

The year 1958 was marked by dramatic changes in the nickel industry, highlighted by abundant supplies of nickel throughout the free world for both civilian and military purposes as well as by vigorous competition for new markets.

The free world attained a new high in annual nickel production capacity in 1958, estimated at about 525,000,000 pounds -- almost double the capacity existing prior to the Korean conflict.

Total nickel consumption in the free world during 1958 is expected to be between 325,000,000 and 335,000,000 pounds, compared with about 415,000,000 pounds in the previous year. The principal cause of the decrease was the business recession in the United States and Canada which had a particularly strong effect upon the production of durable goods. Because this coincided with a period of heavy inventory liquidation by consumers, nickel deliveries in all forms were appreciably lower than consumption. In the United Kingdom and on the Continent there was only a slight decrease in consumption.

Canadian production during 1958 declined sharply, largely as a result of a strike which began in September at International Nickel's mines and plants in Ontario. Prior to this, due to reduced demand, the company had announced three

curtailments in production which ultimately lowered its output to an annual rate of approximately 200,000,000 pounds, or about two-thirds of capacity. Cuban production was also reduced as a result of lower demand and internal disorders in that country.

Free World Nickel Production Capacity to Increase

Today's free world annual nickel production capacity of approximately 525,000,000 pounds is expected to rise progressively in the next few years. This capacity, it is estimated, will reach about 550,000,000 pounds in 1959, about 600,000,000 pounds in 1960, and about 650,000,000 pounds in 1961. It is significant that the projected 1961 nickel production capacity will be about double the estimated total free world consumption in 1958. As a result, consumers who had been forced for a protracted period to curtail their uses of nickel for civilian purposes can now be assured of steady, abundant supplies of this extremely useful metal in the years ahead.

A substantial part of the estimated increase in free world nickel production capacity by 1961 will be forthcoming from International Nickel's Thompson Mine in Manitoba which has been under development for two years. This project is scheduled to start its breaking-in period some time in the latter half of 1960. Full production at the annual rate of 75,000,000 pounds will be reached as soon as possible after the end of the breaking-in period. At this rate, International Nickel's production capacity at its operations in Ontario and Manitoba will total 385,000,000 pounds per year. The Manitoba project will be the world's second largest source of nickel, exceeded only by the company's operations in the Sudbury District of Ontario which have an annual nickel production capacity of 310,000,000 pounds. This project is being financed from company funds and without any government guarantee of a market.

The free world's total potential output in 1961 also includes from Canada that of Falconbridge Nickel Mines Limited and Sherritt Gordon Mines Limited. As the result of expansion programs in which these companies have been engaged, their respective capacities will reportedly amount to 55,000,000 and 27,500,000 pounds per year. It has been reported that the capacity of the United States Government-owned plant at Nicaro, Cuba, will be 54,000,000 pounds annually, and Freeport Sulphur Company has announced it will produce 50,000,000 pounds of nickel annually from its deposits at Moa Bay, Cuba. The capacity of producers in the United States is estimated at some 20,000,000 pounds of nickel annually, originating largely from the M. A. Hanna Company's deposit at Riddle, Oregon. According to published statements the French nickel company, Societe Le Nickel, with mines on the island of New Caledonia, contemplates increasing its nickel output to some 50,000,000 pounds per year. In addition, there will be a relatively small output of nickel in Japan, which is also produced from New Caledonia ores.

In October, 1957, the United States Government authorized the diversion to industry of some 135,000,000 pounds of nickel scheduled for stockpile delivery in 1958. Due to the over-supply, much of this nickel, a large portion of which was premium-priced, did not find markets. The Government has announced it will also offer to industry in the United States all the nickel -- about 100,000,000 pounds -- contracted for stockpile delivery in 1959.

Nickel Prices

The market price for electrolytically refined nickel remained throughout the year at 74 cents (United States currency), including the 1-1/4 cents United States import duty.

In July, International Nickel's United States subsidiary, The International Nickel Company, Inc., announced that it had set the price of its 75 per cent nickel oxide, packaged, at 69.60 cents per pound of contained nickel, Buffalo, N. Y., or other established point of entry into the United States. Previously the company's price was 70.25 cents, unpacked at Copper Cliff, Ontario. This reduction was an attempt to price the nickel oxide produced by International Nickel on a competitive basis.

Nickel Applications

The greater availability of nickel during the year brought with it changes in applications, some new and others a restoration of older uses which had been in effect prior to the period of restricted civilian supplies. Free world nickel consumption by fields in 1958 is estimated as follows: stainless steels, 28%; engineering alloy steels, 16%; nickel specialty alloys, 16%; foundry products, 15%; electroplating, 14%; copper and aluminum base alloys, 6%; and miscellaneous, 5%. These figures show that the steel industries continued to be the largest consumers of nickel.

The stainless steels accounted for the largest use of nickel by the steel industries in 1958. A highly versatile series of alloys, which are resistant to corrosion and heat, they provide great utility and attractiveness for many consumer items, as well as engineering and architectural characteristics, suitable to meet the requirements of defence, transportation and industrial machinery and equipment in this age of supersonic speed and atomic energy. During 1958 the total production of stainless steel dropped substantially, but the percentage of the nickel-containing grades showed some increase relative to the total. In the United Kingdom, Sweden and other European countries production capacity for stainless steel was increased. With a plentiful supply of nickel assured for future

production, it is expected that the use of nickel-containing stainless steels will continue to increase in all fields of application, particularly in those which for a period have remained either dormant or incompletely developed. Some of these fields which are receiving the greatest attention from steel producers are household products, automotive functional trim, and architectural applications including curtain-wall construction, all of which show great development progress and potentials.

In the United States 1958 consumption of primary nickel in engineering alloy steels increased in the face of a reduced rate of production for the steel industry as a whole. In the United Kingdom and Europe, steelmakers used the period to reduce excessive inventories, make full use of available scrap and proceed with new alloy developments. Free availability of nickel has made it possible for alloy steel consumers to return to the higher nickel-containing types for established applications such as in automobiles, trucks, tractors, aircraft, military equipment, farm machinery and road building and transportation equipment. An example of the use of nickel alloys in transportation is in the modernization program of the British Railways where nickel-chromium case-hardening alloy steel is being employed for diesel locomotive roller bearings. An ultra high-strength nickel-containing alloy steel is being used in increasing quantities for landing gear components of new jet transport aircraft, as well as in sheet form for various parts of missiles. The most important new applications were those involving heat-treated high-strength structural plates and shapes containing up to about 3 per cent nickel for bridges, pressure vessels and hulls for naval vessels. Alloy steels with up to 3-1/2 per cent nickel are being specified by engineers as materials for the construction of equipment for low temperature service, and where this condition is exceptionally arduous there is great interest in a steel containing 9 per cent nickel developed by International Nickel for this use.

Nickel, nickel-copper alloys, nickel-chromium alloys, and the wide range of established nickel-base non-ferrous alloys have continued to be specified by engineers where stress and corrosive environments impose severe service conditions. The high-nickel precipitation-hardened and other related alloys provide the strongest cast and wrought compositions commercially available for such highly stressed items as turbo-jet rotor blades for operation at elevated temperatures, and these alloys are specified for most of the first stage jet engine turbine blades. In the more advanced propulsion systems, high-nickel alloys are especially well suited to resist the corrosive action of the new boron-containing high energy fuels. The first so-called manned satellite, the "X-15" built by North American Aviation, represents the first use of a heat-resisting alloy as fabricated sheet metal skin capable of withstanding the weakening effect of aerodynamic heating. "Inconel X" nickel-chromium alloy was chosen as the most suitable material for the body of this space ship.

The new commercial jet aircraft are important users of nickel alloys -- the engines, for instance, use at least three times as much nickel as piston engines. It is estimated that a typical large jetliner employs about two tons or more of nickel in various alloys, the engines accounting for approximately 1-1/2 tons, the balance being employed in electrical equipment, structural members, firewalls and other components. Nickel alloys are also being used for honeycomb structure of high-speed air vehicles.

Complementary to aircraft developments, there has been substantial progress in the development of small gas turbines for both transport and stationary uses. These smaller units make use of the wrought nickel-chromium alloys as well as other high-nickel cast alloys. Extensive use of nickel and nickel alloys is

made in the power plants of atomic-powered submarines and such use of these materials is expected to be extended to surface vessels and stationary power plants. Parallel to the development of atomic power there is going on intensified development of steam power plants operating at higher temperatures and pressures with the end result of increasing efficiency. Such plants would involve many components made of nickel-containing materials. The higher the temperatures and pressures go, the greater is the potential for nickel in the power field.

Austenitic nickel cast irons, long established in industry for high-temperature service such as in diesel engine components and for service under corrosive conditions in the chemical processing industry, are now available in the ductile form with much greater strength and toughness. The new ductile types of these special irons are broadening the market and finding usefulness in industry as a supplement to the heat and corrosion-resistant steels used heretofore. There has been an increased use of abrasion-resisting nickel-chromium cast irons for grinding and crushing equipment in plants handling ores, cement, coal and coke, especially in the United Kingdom, Germany and Scandinavia. New techniques in casting and heat-treating grinding balls made of these alloys show promise of wider adoption of these cast irons for this application in the cement and mining industries. The use of nickel as a magnesium carrier in the manufacture of ductile iron showed an increase during the year, despite the fact that general foundry activity was hampered by the general business recession.

In the United Kingdom the use of nickel for electroplating showed an increase as users once again became able to take advantage of the free availability of nickel. Automotive producers in the United States have increased the thickness of the nickel plating underlying the chromium, thus insuring the quality plate

necessary to secure long-lasting bright finish for automotive trim. In industrial applications important advances included the use of relatively thick nickel deposits on processing and transportation equipment to prevent product contamination, and electroforming of such special products as hypersonic wind tunnel nozzles, grids, screens and special moulds. Another application indicating potential growth is the bright nickel plating of aluminum products. In applications where the inherent light weight of aluminum is of advantage but a protective surface to resist atmospheric corrosion and tarnishing is necessary, nickel-chromium plating provides a lasting, bright and pleasing appearance.

Heat exchanger applications continued to be the major market for cupro-nickel (copper-nickel) alloys containing from 10 to 30 per cent nickel. The nickel silvers, a group of copper-nickel-zinc alloys containing up to 18 per cent nickel, remained as the preferred base metal for high quality silver-plated articles such as tableware. These alloys are also used in top quality slide fasteners and keys.

There has been sustained progress in the use of nickel-containing high-tensile aluminum bronze for large marine propellers, with such propellers having been installed on some of the largest ocean liners. This alloy has opened a new market for propellers in the small-boat field. Nickel-aluminum bronzes, in both cast and wrought forms, are finding increasing use by European firms operating seaboard oil refineries and process plants, being employed with particular advantage for valve and pump components, condenser floating heads and tube sheets.

The 1958 consumption of chemical nickel, including that for catalysts, ceramics and nickel salts, was substantially reduced from 1957 as a result of curtailed business activity. A nickel catalyst, essentially calcium-nickel-phosphate, has played an important part in the expanded European petrochemical production of one variety of synthetic rubber.

A traditional use for nickel is coinage, and during the year consumption in this application rose by 50 per cent. A quaternary coinage alloy was developed at the Mexican Mint, and nickel alloyed coinage returned to Argentina for all denominations and to Colombia for some denominations. Canada continues to use pure nickel for its five-cent piece. In Europe, established nickel and cupro-nickel (copper-nickel alloy) coinages continue and new cupro-nickel coinage was introduced in Spain. Cupro-nickel has also been adopted for new coinage issues in Ghana and Nigeria.

A good potential market, dependent on both product and market development, is the nickel-cadmium storage battery. Taking advantage of a nickel-carbonyl powder specially developed for the purpose by International Nickel, various battery manufacturers are now expanding their facilities to develop and enlarge this market.

Nickel Outlook

Consumption of nickel in recent months has shown an improvement over the low levels touched earlier in the year, and it is expected that this situation will continue into 1959.

The nickel industry is entering into a period of vigorous competition. During the past period of nickel shortage, producers of competitive materials have naturally taken advantage of the fact that large quantities of nickel were required for defence production and were also put into government stockpile. As a result substantial inroads were made into traditional civilian markets for nickel. Now that nickel supplies are plentiful, both for defence and civilian purposes, the nickel industry must recapture these markets and create new uses for nickel-containing products.

We are confident that the research and sales programs of International Nickel and the other nickel producers will result in a steady upward trend in consumption with substantial benefits to the nickel producers as well as to nickel consumers.

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